REMARKS

This Amendment is filed in response to the Office Action dated October 15, 2004. For the following reasons this application should be allowed and the case passed to issue. No new matter is introduced by this amendment. The amendment to claims 1 and 17 are supported by claim 5 as originally filed. Claims 4, 5, 6, 8, and 9 are amended to maintain consistency with amended claim 1. The amendment to claim 17 is supported by originally filed claims 5, 10, and 16. Support for amended claim 19 and new claim 26 is found in originally filed claim 18. New claim 23 is supported by originally filed claim originally filed claims 1 and 5. Support for new claims 24 and 25 is found in originally filed claim 6.

Claims 1-21 and 23-26 are pending in this application. Claims 10-16, 18, 20, and 21 have been withdrawn pursuant to a restriction requirement. Claims 1-5, 8, 9, and 22 have been rejected. Claims 1, 4, 5, 6, 8, 9, 17, and 19 have been amended in this response. Claims 6, 7, 17, and 19 have been objected to. Claim 22 has been canceled. New claims 23-26 have been added.

Restriction

Applicants election of Group I, claims 1-9, 17, 19, and 22 is affirmed.

Specification

The Abstract of the Disclosure was objected to because it was allegedly more than one paragraph in length. In response to this objection, the abstract of the disclosure has been replaced with a single paragraph Abstract in accordance with the Examiner's requirement.

Allowable Subject Matter

Claims 6, 7, 17, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. The Examiner indicated that there is no teaching or motivation to use $FeCo_{30.6}B_{12.5}$ alloy as a soft magnetic material in the claimed magnetic recording medium.

Applicants gratefully acknowledge the indication of allowable subject matter.

Applicants respectfully traverse the Examiner's Statement on Reasons for Allowance. Entry of that Statement into the record should not be construed as any agreement with or acquiescence by Applicants in the stated reasoning.

The Statement sets forth a single rationale for patentability with respect to all of the allowed claims, however, the wording in the Statement does not precisely correspond to the language of any one of the allowed claims. Applicants' positions on patentability are presented with respect to each independent claim in this response. It is submitted that each independent claim, and in fact each claim, is separately patentable in its own right, not just for one general reason as suggested by the Statement.

It is respectfully submitted that the allowed claims should be entitled the broadest reasonable interpretation and broadest range of equivalents that are appropriate in light of the language of the claims, the supporting disclosure and Applicants' prosecution of the claims, without reference to the Statement of Reasons for Allowance.

Claim Rejections Under 35 U. S. C. § 103

Claims 1-5 were rejected under 35 U. S. C. § 103(a) as being unpatentable over Uwazumi et al. (U.S. Pub. App. No. 2003/0064253) in view of Oyanagi et al. (U.S. Patent No. 6,066,380) and Kirino et al. (*Influence of Seedlayer on Film Microstructure of Co-Cr-Pt Longitudinal Recording Media Fabricated on Plastic Substrates*).

Claims 8, 9 and 22 were rejected under 35 U. S. C. § 103(a) as being unpatentable over Uwazumi et al. in view of Oyanagi et al. and Kirino et al. and further in view of Sugita et al. (U.S. Patent No. 4,687,712).

These rejections are traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the instant invention as claimed and the cited prior art.

An aspect of the invention, per claim 1, is a perpendicular magnetic recording medium, comprising a substrate of an amorphous thermoplastic polymer material having softening and glass transition temperatures as low as about 95 °C. At least one stack of thin film layers is formed on at least one surface of the substrate. The at least one layer stack includes at least one granular magnetic recording layer of perpendicular type. The coercivity (H_c) of the perpendicular magnetic recording medium is at least about 4,000 Oe. The at least one layer stack includes at least one soft magnetic underlayer comprising FeCoB.

Another aspect of the invention, per claim 17, is a perpendicular magnetic recording medium manufactured by a method comprising steps of providing a substrate of an amorphous thermoplastic polymer material having softening and glass transition temperatures as low as about 95 °C. At least one stack of thin film layers is formed atop at least one surface of the substrate. The at least one layer stack includes at least one granular perpendicular magnetic recording layer. Each of the thin film layers of the stack is formed by depositing at a substrate temperature not greater than about 70 °C. The coercivity (H_c) of the perpendicular magnetic recording medium is at least about 4,000 Oe. The at least one layer stack includes at least one soft magnetic underlayer comprising FeCoB.

The Examiner asserted that Uwazumi et al. teach a perpendicular magnetic recording medium comprising a non-magnetic substrate (1), a non-magnetic alignment control layer (2), a seed layer (3), a non-magnetic underlayer (4), a magnetic layer (5), and a protective layer (6). The Examiner notes that Uwazumi et al. uses W as the alignment control layer, Pt as the seed layer, Ru as the underlayer, and CoCrPt with SiO_2 as the magnetic layer. The Examiner acknowledges that Uwazumi et al. does not disclose the claimed coercivity, but rather teaches a coercivity of 3600 Oe when W is used as a seed. The Examiner relied on Kirino's teaching that Ti in place of W as a seed layer provides an increase in coercivity of ~ 400 Oe. The Examiner concluded that one of ordinary skill in this art would have been motivated to substitute Ti for W as the seed layer to obtain higher coercivity and squareness. In addition, the Examiner maintained that the claimed amorphous thermoplastic polymer substrate would have been obvious in view of the teachings of Uwazumi et al. and Oyanagi et al. Furthermore, the Examiner averred that Sugita et al. teach the use of a plurality of soft magnetic layers separated by intermediate non-magnetic layers.

Uwazumi et al., Oyanagi et al., and Kirino, whether taken alone, or in combination, however, fail to suggest the claimed perpendicular recording medium because they do not suggest that the at least one layer stack includes at least one soft magnetic underlayer comprising FeCoB, as required by claims 1 and 17.

In the statement of reasons for allowance, the Examiner asserted that the use of FeCoB as a soft magnetic material is known, as shown by Kong et al., *Soft Magnetic Underlayer With Multilayer Structure For Perpendicular Magnetic Recording Media.* Kong et al., Uwazumi et al., Oyanagi et al., and Kirino, whether taken alone, or in combination, however, fail to suggest a perpendicular recording medium a substrate of an amorphous thermoplastic polymer material having softening and glass transition temperatures as low as about 95 ^{o}C with at least one stack of thin film layers formed on at least one surface of the substrate, a coercivity (H_c) of the perpendicular magnetic recording medium is at least about 4,000 Oe, wherein the at least one layer stack includes at least one soft magnetic underlayer comprising FeCoB, as required by claims 1 and 17.

Kong et al. do not disclose the claimed amorphous thermoplastic polymer substrate and the 4,000 Oe coercivity of the perpendicular magnetic recording medium, as required by claims 1 and 17.

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge readily available to one of ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). There is no suggestion in Kong et al. to substitute a FeCoB soft magnetic underlayer into the perpendicular magnetic recording medium having a coercivity of 4,000 Oe comprising an amorphous thermoplastic polymer substrate, as required by claims 1 and 17.

The mere fact that references can be modified does not render the resulting combination obvious unless the prior art also suggests the desirability of the modification. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Kong et al. do not suggest modifying a perpendicular magnetic recording medium having a coercivity of 4,000 Oe comprising an amorphous thermoplastic polymer substrate, to include a FeCoB soft magnetic underlayer as required by claims 1 and 17.

The requisite motivation to support the ultimate legal conclusion of obviousness under 35 U.S.C. § 103 is not an abstract concept, but must stem from the applied prior art as a whole and realistically impel one having ordinary skill in the art to modify a specific reference in a specific manner to arrive at a specifically claimed invention. *In re Deuel*, 51 F.3d 1552, 34 USPQ2d 1210 (Fed. Cir. 1995); *In re Newell*, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989). Accordingly, the Examiner is charged with the initial burden of identifying a source in the applied prior art for the requisite realistic motivation. *Smiths Industries Medical System v. Vital Signs, Inc.*, 183 F.3d 1347, 51 USPQ2d 1415 (Fed. Cir. 1999); *In re Mayne*, 104 F.3d 1339, 41 USPQ2d 1449 (Fed. Cir. 1997). The Examiner has not identified any motivation in Kong et al. to suggest modifying a perpendicular magnetic recording medium having a coercivity of 4,000 Oe comprising an amorphous thermoplastic polymer substrate, to include an FeCoB soft magnetic underlayer as required by claims 1 and 17.

The only teaching of the claimed perpendicular magnetic recording medium is found in Applicants' disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Applicants submit that the dependent claims are allowable for at least the same reasons as the independent claims and further distinguish the claimed invention. In addition, Applicants submit that new claims 23 and 26 are allowable for at least the same reasons discussed above. Further, Applicants submit that new claims 24 and 25 are allowable for at least the same reasons as claim 6.

In view of the above amendments and remarks, Applicants submit that this application should be allowed and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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